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AUTHOR Jarrell, Michele E.; And Others
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ABSTRACT

Procedures used in Doctor of Education (Ed.D.) dissertations at the University of Alabama (Tuscaloosa) were studied. Focus was on identifying: (1) characteristics of the research designs used; (2) sources of the instruments used to collect data; (3) reports of reliability estimates and evidence of validity of the instruments; and (4) types of statistical techniques applied. Seventy-five dissertations were randomly selected from a pool of 209 completed between 1984 and 1988. A revised version of a checklist previously developed was used in the analysis. Interrater reliability was assessed at the beginning of data collection to resolve potential problems. Results indicate that quantitative procedures were used in 88% of the dissertations, and qualitative procedures were used in 12%. Less sophisticated procedures (e.g., "t"-tests, chi-square, one-way analysis of variance) were used more frequently (72%) than were multivariate procedures (28%). Validity information was reported more frequently (80%) than was reliability information (49%) for the instruments used. Pilot studies of researcher-developed instruments were reported in 64% of the dissertations. Recommendations to alleviate some of the weaknesses found in the procedures used in the Ed.D. dissertations include: (1) more coursework in research and statistics in Ed.D. programs; and (2) departmental seminars so that Ed.D. candidates and faculty advisors can become more aware of more complex analysis procedures. The dissertation analysis instrument is appended. (Author/SLD)

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Research Methods, Statistical Procedures, and Psychometric Integrity of Instruments Used In Doctor of Education Dissertations At The University of Alabama 1984 - 1988

Michele E. Jarrell, Victoria A. Johnson and

Brad Chissom

University of Alabama

and

Kevin R. Hughes

Western Kentucky University

Paper presented at the Annual Meeting of The Mid-South Educational Research Association, Little Rock, AK, November 8-10, 1989.

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Abstract

No recent studies have investigated the procedures used in Doctor of Education (Ed.D.) dissertations at The University of Alabama (UA). The purpose of this study was to provide such an investigation. Seventy-five Ed.D. dissertations were randomly selected from a population of 209. A revised version of a previously developed checklist was used in the study. Interrater reliability was checked at the beginning of data collection to resolve potential problems. Results of the study indicated that quantitative procedures were used in 88% of the dissertations and qualitative procedures were used in 12% of the dissertations. Less sophisticated statistical procedures (e.g., t-tests, chi-square, one-way ANOVA) were used much more frequently (72%) than multivariate procedures (28%). Validity information was reported much more frequently (80%) than reliability information (49%) for instruments used. Pilot studies of researcher-developed instruments were reported in 64% of the dissertations. In sum, weaknesses were noted in the procedures used in Ed.D. dissertations at UA. Some effort should be made to alleviate these deficits. Specific suggestions are to (a) include more coursework in research and statistics in Ed.D. programs and (b) conduct departmental seminars so that Ed.D. candidates and faculty advisors can become more aware of more complex analysis procedures.

Introduction

Dissertation research requires a great deal of time and effort from graduate students and faculty members alike. However, little information is gathered in a systematic way that examines and evaluates dissertation research. Graduate schools and accrediting bodies simply do not or rarely make the major product of doctoral education, the dissertation, the object of careful analysis. Even when such an investigation is made, the results are usually disseminated within the institution, and are not made available for public scrutiny.

It would seem that a product as important as the dissertation should be examined regularly with the intent to provide feedback to those responsible for dissertation research. The overall result of such evaluative efforts should be an improvement in the dissertations that students write.

The results of such an evaluative effort were presented last year at the 1988 Mid-South Educational Research Association (MSERA) meeting. At that meeting, a symposium was held in which various topics related to the evaluation of dissertations at Auburn University were considered in four presentations (Halpin, 1988). Those attending the symposium expressed interest in conducting similar studies in their own institutions, and further recognized that the availability of similar studies from within the Mid-South Region of the country should prove useful to those responsible for dissertation research.

This study was conducted in a similar fashion to the one reported by the symposium presenters from Auburn University. Some elements of the study are

not identical to the previous research effort, but an effort was made to mirror the efforts of the Auburn study.

Purpose

This study examined dissertations completed by Doctor of Education (Ed.D.) students at the University of Alabama. (No attempt was made to examine Ph.D. dissertations) The four purposes of the study were to identify: (1) characteristics of the research designs used; (2) sources of the instruments used to collect data; (3) reports of reliability estimates and evidence of validity of the instruments used; and (4) types of statistical techniques applied.

Method

Between 1984 and 1988, 209 dissertations were completed by Doctor of Education students at the University of Alabama, and of these, 75 (36%) were randomly selected for study. The 75 dissertations were randomly divided among four raters (three advanced graduate students and one faculty member) for analysis. The instrument used in the Auburn study (Talbert and Brown-Meyers, 1988) and the checklist from which it was adapted, (Willson, 1980) were reviewed, modified, and synthesized to create a preliminary checklist to be used in standardizing the examination of the dissertations. Four dissertations were chosen to be read by all four raters to resolve potential difficulties with the checklist. The final, revised checklist, which is included in the appendix, was then used as the basis for analysis as the 75 dissertations were examined. Since the primary purpose of the study was to describe the characteristics of the

dissertations, simple descriptive statistics (means, frequencies, and percentages) were used to analyze the data.

Results

Research Design. Seventy-one (95%) of the 75 dissertations had a quantitative component, and nine (12%) of the dissertations were classified primarily as qualitative studies. Eleven (15%) were experimental in nature and used a control group as part of the design of the study. Twenty-six (35%) examined the entire population of interest, while 23 (31%) chose a random sample for study. Thirty-two (43%) dissertations used a mail survey to obtain data. The return rates for the 32 ranged from 25% to 100%, with a mean return rate of 73%.

Instrumentation. Forty-two (56%) dissertations used at least one previously-developed (published) instrument to obtain data for the study. Some dissertations employed more than one previously-developed instrument and a total of 50 instruments were used in the 75 dissertations reviewed. Of the 50 instruments used, 41 (82%) addressed the issue of validity of the instrument, while 37 (74%) reported reliability estimates.

Fifty-one (68%) dissertations used at least one author-developed instrument. A number of the dissertations employed more than one author-developed instrument and a total of 58 author-developed instrument were used in the 75 dissertations reviewed. Of the 58 author-developed instruments, 45 (78%) addressed the issue of instrument validity, while 16 (28%) reported reliability

estimates. Thirty-seven (64%) of the author-developed instruments were reported as being pilot-tested before being used in the study.

In summary, of the 108 instruments used to collect data, 86 (80%) addressed the issue of validity of the instrument, while 53 (49%) reported reliability estimates.

Statistical Techniques Table 1 indicates the number of dissertations using the statistical technique indicated and the percent of all dissertations using that technique.

Insert Table 1 About Here

As the table indicates, Chi-Square was the most frequently used statistical technique in the sample of dissertations. Less complex analysis techniques (Chi-Square, 1-Way ANOVA, t-Test, Etc.) were used almost exclusively. More complex multivariate analysis techniques (MANOVA, Discriminant Analysis, Canonical Analysis, etc.) were rarely used.

Finally, multiple non-independent statistical tests were performed in 52 (69%) dissertations. However, only one dissertation reported an appropriately adjusted alpha level to control the experimentwise Type I error rate.

Conclusions

The overall results of the study indicate a relative lack of sophistication in the design of Ed.D. dissertations, and in the use of statistical procedures. Close

to one-half (43%) of the dissertations used mail surveys with varying degrees of success in obtaining returns. The frequent use of chi-square as the analysis procedure was due to the fact that many of the survey-type studies conducted used chi-square as the major analysis technique.

The relative infrequency of the reporting of reliability information (28%) compared to support for validity (78%) of author-developed instruments points out a weakness that needs improvement. If so many dissertations (68%) use author-developed instrumentation, reporting of reliability estimates should be improved. If no estimates of reliability are available, then students should be strongly encouraged to provide them.

On the positive side, the fact that less complex designs and analysis procedures made up the majority of dissertations examined indicates that design and analysis techniques were related. There was no evidence to indicate an over-analysis (using complex analysis procedures with designs that are not complex) of the data which tends to be a problem for many beginning researchers.

In order to help improve the quality of Ed.D. dissertations written at The University of Alabama the following suggestions are made:

(1) Include more coursework in research and statistics in doctoral programs leading to the Ed.D.

(2) Conduct departmental seminars for graduate students and faculty advisors to introduce more complex design and analysis procedures.

(3) Emphasize other approaches to research such as qualitative methods, and deemphasize the reliance on mail surveys.

References

Halpin, Gerald (1988). Dissertation Research: An Evaluation with Program Implications (symposium). Mid-South Educational Research Association, Louisville, KY, November 10, 1988.

Talbert, Suzanne and Brown-Meyers, Peggy (1988). The Design and Use of an Instrument to Evaluate Research and Statistical Methods in Dissertations. Paper presented at the Mid-South Educational Research Association annual meeting, Louisville, KY, November 10, 1988.

Willson, Victor L. (1980). Research Techniques in AERA Articles: 1969 to 1978. Educational Researcher, 9(6), 5-10.

Table 1

Statistical Technique	Frequency	* Percent of Dissertations
Chi-Square	21	28%
ANOVA (More than 1-WAY)	18	24%
ANOVA (1-WAY)	15	20%
T-Test	13	17%
Correlation	10	13%
Regression	6	8%
Discriminant Analysis	3	4%
ANCOVA	2	3%
Wilcoxon Signed-Rank	2	3%
Kruskal-Wallis	2	3%
Trend Analysis	1	1%
Cluster Analysis	1	1%

* Since some of the dissertations used more than one statistical technique, the sum of the percents exceeds 100%

APPENDIX
DISSERTATION ANALYSIS

Rater: _____

Date: _____

General Information

1. Department: _____
2. Student's Name: _____
3. Dissertation Title: _____

   _____
4. Year: 1 (88) 2 (87) 3 (86) 4 (85) 5 (84)
5. Major Professor: _____ (Dept) _____
6. Committee Member: _____ (Dept) _____
7. Committee Member: _____ (Dept) _____
8. Committee Member: _____ (Dept) _____
9. Committee Member: _____ (Dept) _____
10. Committee Member: _____ (Dept) _____

Design

11. Qualitative Component? 1 No 2 Yes

    1 Case Study

    2 Historical

    3 Ethnographic

    4 Other _____ _____
12. Quantitative Component? 1 No 2 Yes

    1 Experimental/Quasi-Experimental

    2 Non-Experimental
13. Control Group? 1 No 2 Yes
14. Number of Hypotheses/Research Questions _____
15. Type of Subject Selection:

    1 Random Sample

    2 Non-Random Sample

    3 Entire Population
16. Size of Population _____
17. Size of Sample _____
18. If survey, percent return _____

Instrumentation

19. Was (Were) previously established instrument(s) used?

1 No 2 Yes

20. For previously estabished instruments, were the following reported?

Instrument	Validity	Reliablity
1	1 No 2 Yes	1 No 2 Yes
2	1 No 2 Yes	1 No 2 Yes
3	1 No 2 Yes	1 No 2 Yes
4	1 No 2 Yes	1 No 2 Yes
5	1 No 2 Yes	1 No 2 Yes

21. Was (Were) author developed instrument(s) used?

1 No 2 Yes

22. For author developed instruments, were the following reported?

Instrument	Validity	Reliablity	Pilot Study
1	1 No 2 Yes	1 No 2 Yes	1 No 2 Yes
2	1 No 2 Yes	1 No 2 Yes	1 No 2 Yes
3	1 No 2 Yes	1 No 2 Yes	1 No 2 Yes
4	1 No 2 Yes	1 No 2 Yes	1 No 2 Yes
5	1 No 2 Yes	1 No 2 Yes	1 No 2 Yes

23. Was inter-rater reliability reported (if applicable)?

1 No 2 Yes

Statistical Techniques

24. Was alpha level adjusted for multiple analyses (if appropriate)? 1 No 2 Yes

	# Used to Test Hypotheses/ Research Questions	# Used for Supplemental Analyses
25. Independent t-test	_____	_____
26. Dependent t-test	_____	_____
27. ANOVA		
One-Way	_____	_____
More than One-Way	_____	_____
Follow-up Procedures	_____	_____
Number of Factors _____		
28. ANCOVA		
One-Way	_____	_____
More than One-Way	_____	_____
Follow-up Procedures	_____	_____
Number of Factors _____		

Statistical Techniques (continued)

	# Used to Test Hypotheses/ Research Questions	# Used for Supplemental Analyses
29. MANOVA		
One-Way	_____	_____
More than One-Way	_____	_____
Follow-up Procedures	_____	_____
Number of Factors _____		
30. Pearson Correlation	_____	_____
31. Regression	_____	_____
Number of Predictors _____		
32. Discriminant Analysis	_____	_____
Number of Dependent Variables _____		
Number of Groups _____		
33. Canonical Correlation	_____	_____
Number of Dependent Variables _____		
Number of Independent Variables _____		
34. Path Analysis	_____	_____
35. Factor Analysis	_____	_____
Number of Variables _____		
36. Cluster Analysis	_____	_____
37. Chi-Square	_____	_____
38. Wilcoxon Signed Rank	_____	_____
39. Spearman Rho	_____	_____
40. Kruskal-Wallis	_____	_____
41. Friedman Test	_____	_____
42. Other _____	_____	_____
43. Other _____	_____	_____
44. Other _____	_____	_____
45. Other _____	_____	_____
46. Other _____	_____	_____

47. Other comments _____

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